

ABSTRACT OF THE DISCLOSURE

Methods for enhancing bioremediation of ground water contaminated with nonaqueous halogenated solvents are disclosed. An illustrative method includes adding a composition to the ground water wherein the composition is an electron donor for microbe-mediated reductive dehalogenation of the halogenated solvents and enhances mass transfer of the halogenated solvents from residual source areas into the aqueous phase of the ground water. Illustrative compositions effective in these methods include surfactants such as C₂-C₄ carboxylic acids and hydroxy acids, salts thereof, esters of C₂-C₄ carboxylic acids and hydroxy acids, and mixtures thereof. Other illustrative compositions according to the present invention include oleyl lactic acid and, optionally, oleic acid and lactic acid or salts thereof. Especially illustrative compositions for use in these methods include lactic acid, salts of lactic acid, such as sodium lactate, lactate esters, and mixtures thereof. The microbes are either indigenous to the ground water, or such microbes can be added to the ground water in addition to the composition.